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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/627,500	07/25/2003	Dennis A. Dempsey	AD-332J	3247

7590 04/05/2005

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EXAMINER

WILLIAMS, HOWARD L

ART UNIT PAPER NUMBER

2819

DATE MAILED: 04/05/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/627,500	<b>Applicant(s)</b> DEMPSEY ET AL.	
	<b>Examiner</b> Howard L. Williams	<b>Art Unit</b> 2819	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 07 February 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-74 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 31-40 and 65-74 is/are allowed.
- 6) ☒ Claim(s) 1-3, 6, 8-17, 20, 24, 27-30, 41-44 and 46-64 is/are rejected.
- 7) ☒ Claim(s) 4, 5, 7, 18, 19, 21-23, 25, 26 and 45 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>020705</u> . | 6) <input type="checkbox"/> Other: _____  |

The examiner acknowledges receipt of the Information Disclosure Statement filed 07 February 2005. An initialed copy of the citation form should accompany this letter.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 2, 3, 6, 12, 17, 24, 41-44, 50, 55 and 60 are rejected under 35 U.S.C. 103(a) as unpatentable over U. S. Patent 4,829,236 to Brenardi et al.

Brenardi discloses a digital-to-analog calibration system or digital calibration circuitry (DCC 16; fig. 1). Brenardi includes DAC(s) (14; fig. 1); Multiplier Accumulator Circuitry is included (MAC 58; fig. 2) for multiplying and adding the gain and offset/end-point/zero and full scale coefficients or error coefficients to the input signal to correct/compensate the output as appropriate; Analog circuitry is disclosed. Brenardi also includes memory for the gain and offset (44, 46; fig. 2). It was not noted that Brenardi does not appear to call the system an integrated programmable digital calibration circuit and digital-to-analog converter or digital calibration system; however, the applicability of such terminology to Brenardi would have been obvious to one of ordinary skill in the art because the same or similar individual components are present and connected to perform a similar function. Brenardi also doesn't seem to disclose that the system is programmable; however the presence and connection the computer and its system interface and data bus would have been obvious to suggest

programmable control over the calibration system and its components to one of skill in the art.

Claims 8-11, 13-16, 20, 27-30, 46-49, 51-54, 56-59 and 61-64 are rejected under 35 U.S.C. 103(a) as being unpatentable over U. S. Patent 4,829,236 to Brenardi et al. in view of U.S. Patent 6,191,715 B1 to Fowers et al.

The Brenardi DAC calibration system is not described as being on the same chip with the DAC. As such it would appear that reasonable inference of the memory being external to the DAC and DCC may be drawn. Fowers et al. disclose a self calibrating DAC (1; fig. 5) which is also connected to analog circuitry (83, 85; fig. 5). The self-calibrating DAC system of Fowers et al. is shown in greater detail in figure 1 and includes registers to serve as memory of the gain and offset error correction values. The Fowers disclosure by illustrating the calibration and DAC circuitry as one unit (1; fig. 5) is seen as reasonably suggesting to one of skill in the art that it would have been obvious to provide the DCC and DAC on the same chip because it would provide a more compact and unified system for the user simplifying its use after manufacture.

Claims 4, 5, 7, 18, 19, 21-23, 25, 26 and 45 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 31-40 and 65-74 are allowed over the prior art of record.


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The prior art of record was not seen to disclose the second adder or the divider or the normalization of the error coefficient values to the LSB.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Howard L. Williams at telephone number (571) 272-1815.

4/1/05  
Voice: (571) 272-1815

  
Howard L. Williams  
Primary Examiner  
Art Unit 2819